

LINCOLN CITY/LANCASTER COUNTY PLANNING STAFF REPORT

for November 10, 2004 PLANNING COMMISSION MEETING

P.A.S.: Miscellaneous #04016
Proposed Policy on Temporary Pump Stations and Force Mains

PROPOSAL: A proposed policy on "Temporary Pump Stations and Force Mains" to address circumstances in which the City may allow sanitary sewage to be handled on a temporary basis using private pump stations and force mains.

CONCLUSION: For decades the City has been well served by a gravity based sanitary sewer system, that has been one part of an overall system to maintain efficient and orderly growth of the community. The proposed policy will permit a few temporary pump stations, as the community works to complete a significant expansion of the wastewater trunk line system. Allowing a few temporary pump stations, will continuing to follow the other growth principles of the community, is consistent with the 2025 Comprehensive Plan.

RECOMMENDATION:

Approval

GENERAL INFORMATION:

COMPREHENSIVE PLAN SPECIFICATIONS:

"Lincoln's future urban growth should generally occur in multiple directions around the existing city. Lincoln will continue to have managed and contiguous growth. Lincoln's sense of community has been based on incremental, compact growth built on the foundations of established neighborhoods. Future growth will continue this traditional pattern and be linked to both the level of demand in the market and to the orderly extension of public improvements and services. Lincoln will continue to contain approximately 90 percent of the County's population." (F 17)

"Maximize the community's present infrastructure investment by planning for residential and commercial development in areas with available capacity." (F 17)

"The City's collection system, in general, will continue to be a gravity fed system that is designed to accommodate urbanization of drainage basins and sub-basins. This system encourages orderly growth within the natural drainage basin boundaries. This policy encourages urban growth from the lower portion of the drainage basin

Policy on Temporary Pump Stations and Force Mains

and prohibits pumping of wastewater across basin boundaries. Explore alternative methods, such as lift stations, where practical.” (F 77)

“The City of Lincoln shall only provide water and waste water service to properties located within the corporate limits of the city. This policy provides for contiguous growth, allows for efficient long range planning and cost effective construction and management of the system.” (F 75)

BACKGROUND:

Fall 2003, staff discussions on potential policy began as part of review of several proposals for pump stations.

March 8, 2004, preliminary plat at N. 98th and O Street (now named Waterford Estates) is submitted, including a temporary pump station and force main.

May 3, 2004, the first draft of the “Temporary Pump Station and Force Main Policy” was released on May 12th, as part of the Planning Commission report on Vintage Heights at S. 98th and Old Cheney Road, which included a proposed pump station. Staff recommended denial of the station since it was small station serving a limited area on a long term basis.

October 1, 2004, the second draft was released at pre-Council meeting with the City Council as part of initial discussion of Northbank Junction at N. 56th and Arbor Road which was scheduled for public hearing that day. This proposed temporary pump station has been placed on pending by the City Council awaiting action by the Council on this policy.

October 19, 2004 staff held a meeting to discuss this policy and other proposed changes with members of the development community. A second meeting is scheduled for November 2nd.

ANALYSIS:

1. For decades the community has been well served by its policy to use a gravity based sanitary sewer system. This policy has led to more efficient and cost effective utility service for the citizens and rate payers. Alternatives, such as relying on pump stations, are more expensive to maintain and operate in the long run. More importantly, the gravity system is a fundamental tool of the City’s infrastructure and community planning that has allowed Lincoln to grow in a more contiguous and predictable manner in order to meet the community’s goals.

Policy on Temporary Pump Stations and Force Mains

2. The adopted City of Lincoln sanitary sewer design standards state:

“The various elements of the sanitary sewer system in the City of Lincoln are designed to handle only that wastewater contribution which originates within the natural surface watershed where in the sanitary sewer system is located. The transfer of wastewater from one watershed to another by any means, such as lift station or construction of a sanitary sewer which cuts through the ridge separating the watersheds, shall not be permitted.”

3. This proposed policy (see policy at end of report) will not allow pump stations as a replacement to the current gravity system. Instead, it is intended to permit a few temporary private pump stations and force mains in areas where the City’s gravity trunk line is a few years from construction.
4. While allowing a few pump stations, the City is proposing to significantly increase sanitary sewer trunk line extensions and improvements to the treatment plants to meet future demands thought the community. The final edition of Fiscal Year (FY) 2004/05 to 2009/10 Capital Improvement Program (CIP) includes spending \$35 million in the FY 2004-05 and \$30 million the following year on wastewater improvements. This is a significant increase in spending on treatment capacity and trunk lines over recent years. The improvements in the next six years will expand trunk lines to the east in Stevens Creek; southeast in Beal Slough; south in Salt Creek, along West O Street, to the northwest in Oak Creek and northeast Salt Creek to the 56th and Arbor Road area.
5. While significant increases in trunk line extensions are planned by the City, there are developers who have expressed interest in starting development next year, rather than waiting three to six years for the trunk lines to be built and treatment capacity increased. Thus, this has led to discussion of temporary pump stations for these developments until the gravity trunk line is completed.
6. If temporary pumps and force mains are to be considered, the draft policy calls for them to be financed entirely by the developer. Any spending on temporary facilities will not entitle the developer to any reductions in impact fees or other cost responsibilities. Temporary improvements are not eligible for reimbursement under the impact fee ordinance.
7. In order to review the current short term requests, city staff developed a proposed policy for temporary pump stations. This policy addresses some limited circumstances for development with a pump station without adding costs or undue risk to the City. The main points from the policy include:

Policy on Temporary Pump Stations and Force Mains

- a. **Pump Stations Shall be on Temporary Basis:** *Temporary shall mean a period up to **six years**, at which point the new gravity line is built allowing the facility to be discontinued.*
 - b. **Priority A Areas Only:** *Pump stations are only allowed in Tier I - Priority A areas. Land in Tier I, Priority B and Tier II and III are not planned for full services for 10 years or more and should not be served at this time. Beginning development in these areas would have service and budget implications.*
 - c. **Limited Use:** *Only a few temporary exceptions to the gravity sewer policy should be approved, the vast majority of the land should be served by a gravity sewer line.*
 - d. **Receiving Sewer Line Capacity:** *The receiving trunk or smaller lines must have capacity based on current and projected flows to receive the extra flow during the temporary basis.*
 - e. **Service Area of Pump Station:** *Pump stations to benefit and serve a single property are discouraged. Small pump stations are inefficient to operate. Pump stations should be designed to serve at least 500 to 1,000 acres.*
 - f. **Length of Force Main:** *Even if fully funded by a developer, building long force mains rather than a gravity sewer lines is inefficient use of the property or homeowner's financial resources – and a potential obligation to the rate payers.*
 - g. **Operating, Repair and Maintenance Costs:** *The developer will be responsible for all costs for operating and maintaining the pump station and force main during the life of the facility.*
8. There is also a proposal before the City for a pump station that could be in place for 20 to 40 years, would serve less than 40 acres and 70 homes. This type of small, long term pump station is contrary to the City policy. If adopted, it would lead to numerous requests for similar small stations scattered around the community in Tier II and III development areas. This would ultimately lead to a burden on the new property and homeowners in these subdivisions and requests for the City to take

Policy on Temporary Pump Stations and Force Mains

over the financial responsibility. This in turn would burden the utility ratepayers of Lincoln with the cost of maintaining many pump stations.

9. It is imperative that the temporary pump stations only sewer Tier I, Priority A areas, which are planned for development in the next decade. While a private pump station could serve the sanitary sewer needs, it doesn't address other utilities and service needs, such as water, roads, schools and fire protection. These service providers are focusing their infrastructure improvement plans on the Priority A area. The goal of the Comprehensive Plan, as well as the most efficient way to provide services, is to develop the infrastructure concurrent with development. The Comprehensive Plan states on page F 154:

"Concurrency Policy

Public infrastructure - including roads, water, sewer, parks, schools, and libraries - is essential to the health, safety, and welfare of the community. As the community grows, it is desirable that these systems and facilities be developed concurrently - that is, at the same time - with that growth.

If growth occurs without the development of adequate public infrastructure, or the public infrastructure lags behind the growth of the community, the quality of life in the whole community will be diminished. Facilities may become overcrowded or overused. In the worst case, essential public services might not be available, thereby threatening the health, safety and welfare of the community."

10. The policy proposes that the City staff would operate and maintain the facilities, paid for by the developer. The policy states "The developer will own the pump station, land and easements, and the City will operate the pump station and force mains once inspections have been completed and the facilities are found acceptable. Pump stations in general are costly to maintain and operate and take staff dedicated to handle some time late night calls on failures and problems. Pump stations should be avoided and the City accepts operation responsibilities only to avoid problems of an inexperienced or inaccessible private operator would inadequately respond to complaints or emergency situations."
11. Developers who have expressed an interest in a temporary pump station have requested the policy include a provision allowing them to transfer the responsibility for the operation and maintenance cost to a property or homeowner's association. The policy as proposed requires the developer to still be billed for the costs, because of concerns about the ability of an association to deal with the responsibility of pump station over a number of years. The developer may bill the

Policy on Temporary Pump Stations and Force Mains

association for the costs, but they will be ultimately responsible for operating and maintenance costs.

Prepared by:

Stephen Henrichsen, AICP
Principal Planner

DATE: November 1, 2004

APPLICANTS:

Allan Abbott, Director
Public Works & Utilities
505 S. 10th Street
Lincoln, NE 68508
Phone: 441-7548

Marvin Krout, Planning Director
Lincoln/ Lancaster County Planning Dept.
505 S. 10th Street
Lincoln, NE 68508
Phone: 441-7491

CONTACTS:

Steve Masters
Public Works & Utilities
505 S. 10th Street
Lincoln, NE 68508
Phone: 441-7588

Stephen Henrichsen
Lincoln/ Lancaster County Planning Dept.
505 S. 10th Street
Lincoln, NE 68508
Phone: 441-6374

Policy on Temporary Pump Stations and Force Mains

Policy on Temporary Pump Stations & Force Mains

For decades the community has been well served by its policy to use a gravity based sanitary sewer system. This policy has led to more efficient and cost effective utility service for the citizens and rate payers. Alternatives, such as relying on pump stations, are more expensive to maintain and operate in the long run.

More importantly, the gravity system is a fundamental tool of the City's infrastructure and community planning that has allowed Lincoln to grow in a more contiguous and predictable manner in order to meet the community's goals.

The 2025 Lincoln/ Lancaster County Comprehensive Plan states:

"The City's collection system, in general, will continue to be a gravity fed system that is designed to accommodate urbanization of drainage basins and sub-basins. This system encourages orderly growth within the natural drainage basin boundaries. This policy encourages urban growth from the lower portion of the drainage basin and prohibits pumping of wastewater across basin boundaries. Explore alternative methods, such as lift stations, where practical."

The adopted City of Lincoln sanitary sewer design standards state:

"The various elements of the sanitary sewer system in the City of Lincoln are designed to handle only that wastewater contribution which originates within the natural surface watershed where in the sanitary sewer system is located. The transfer of wastewater from one watershed to another by any means, such as lift station or construction of a sanitary sewer which cuts through the ridge separating the watersheds, shall not be permitted."

In light of developer requests to waive this standard and permit temporary pump stations and force mains, such requests will be considered based on the criteria on the following pages.

Policy on Temporary Pump Stations and Force Mains

1. **Temporary Basis:** Pump stations are more expensive to maintain and operate than gravity systems and will only be allowed on a temporary basis. Gravity flow sanitary sewer lines are still the best and most cost efficient long term method to provide service. Temporary shall mean a period up to **six years**, at which point the new gravity line is built allowing the facility to be discontinued. As soon as the gravity line is available, the pump station shall be discontinued and removed.
2. **Priority A Areas Only:** Pump stations and force mains shall only be allowed in Tier I - Priority A areas; provided that the gravity trunk line to the service area is in the 6 Year Capital Improvement Program (CIP) with funding clearly identified.
3. **Limited Use:** The City of Lincoln's gravity sewer system policy has served the community well for decades. It is the most efficient and cost effective system for the citizens and rate payers of Lincoln. Pump stations and force mains shall only be used in unusual circumstances for a substantial public benefit. It is anticipated that temporary pump stations may only be used one or two times in the entire Lincoln area. In the vast majority of situations, gravity sewer should be used, even if the trunk line construction is several years away. Pump stations and force mains are to be temporary due to a delay in the construction of the gravity line.
4. **Impact on Other Services:** Use of a pump station to advance development may also impact the provision of other public services. Thus, the developer must address the following information (based on principles for serving Priority B areas before Priority A areas, page F 30 of the Comprehensive Plan):
 - a. "Demonstrate how the necessary infrastructure improvements to serve the sub-basin would be provided and financed. The City shall contact other public agencies to obtain their report on the infrastructure necessary to serve the sub-basin including utilities, roads, fire service, public safety, parks, trails, schools and library needs.
 - b. The impact that development in the sub-basin will have on capital and operating budgets, level of service, service delivery and Capital Improvement Programs is addressed.
 - c. There is demonstrated substantial public benefit and circumstances that warrant approval of the proposal in advance of the anticipated schedule."
5. **Crossing Creeks:** Permanent lift stations to transfer sewage from one side of a creek to the other, as part of gravity system have always been permitted. There are circumstances where a lift station to cross a creek is the best solution instead of siphons. This has been a policy and practice of the city for decades.
6. **Receiving Sewer Line Capacity:** The receiving trunk and/or smaller line must have capacity based on current and projected flows to receive the extra flow during the temporary basis. The projected capacity should assume a full buildout of any land that is already planned to be served in

Policy on Temporary Pump Stations and Force Mains

the Comprehensive Plan. The projected capacity should be based on a reasonable buildout of any undeveloped land.

7. **Basins with Sewer Line Capacity:** The following sanitary sewer trunk lines have capacity as of this date (assuming projected Tier I development)

Lines With Capacity

- West O
- Little Salt

Lines Without Capacity

- Havelock
- Dead Man's Run
- East Campus
- Antelope Creek
- Beal Slough
- Salt Creek (south)
- Middle Creek
- Oak Creek
- Lynn Creek

"Lines Without Capacity" is based on existing and approved developments underway and could not be pumped into under any circumstances. In some situations, once major improvements to a few of these lines are made, then there may be some capacity.

The new Stevens Creek trunk line, when constructed, would have capacity. The new Salt Valley relief trunk line is designed for a specific service area and will be considered at capacity.

8. **Use of Storage Tanks:** The use of storage tanks is prohibited. Developments have proposed building storage tanks in order to pump the waste out at night in areas where the existing pipes are at capacity. There are compelling technical and operational problems with storing effluent for period beyond a few hours. For example, there are odor problems and the waste when held for a long period can cause corrosion problems in pipe lines. A pump station is typically designed to pump all the waste out every 2 to 3 hours, which is the longest period the waste should be held.
9. **Service Area of Pump Station:** The pump station and force main should be sized to serve Tier I, Priority A land that is in the same sub-basin which naturally drains to the pump station. Pump stations to benefit and serve a single property are discouraged. Small pump stations are inefficient to operate. Pump stations should be designed to serve at least 500 to 1,000 acres. The area to be served by the pump station must be contiguous to the city limits. This policy is not intended to permit "leap frog" or growth that is not contiguous to the city. Any land to be served must be inside the city limits prior to service.
10. **Length of Force Main:** Even if fully funded by a developer, building long force mains rather than a gravity sewer lines is inefficient use of the future homeowner's financial resources. The longer time it takes to transport the waste, the greater potential for problems with respect to corrosion and odor. The transit time must be based on estimated sulfide generating capacity (or offset by chemical addition). The developer must ensure reasonable velocity with at least 4 to 5 feet per second (fps) at least 1x/day. It will be important to make appropriate use of air relief valves, blowoffs, oxygen injection (if needed), in accordance with City design standards. To

Policy on Temporary Pump Stations and Force Mains

protect against peak flow impacts of major storm events, the pump station should be sunk in the ground and with an enlarged pipe coming in to the pump station to provide additional storage (Hydraulic Institute Standards 98). Standards will be needed for acceptable chemicals for use in pump station odor control.

11. **Notification of Other Affected Properties:** The City is responsible for contacting all other property owners that may reasonably be served by a pump station, early in the review process. This will allow other owners to have the same information and determine their interest in the potential pump station.
12. **Location of Pump Stations:** The developer is responsible for all costs involved in acquiring suitable land for the pump station and any costs for providing access drives to the facility. Pump stations shall not be in public right-of-way. The developer shall be solely responsible for all costs of any environmental analysis needed to locate the facility.
13. **Obtaining Right-of- Way and Easements:** The developer shall be solely responsible for all costs of obtaining right-of-way and easements without any reimbursement from the City or third parties. Force mains will be allowed to be located in arterial street right-of-way, if space is available. If the force main is to be abandoned after conversion to a gravity system, the developer must prove that there is adequate right-of-way for the unused force main and all other utilities typically found in the right-of-way.
14. **Construction:** The developer shall be solely responsible for all costs of constructing the pump station and force main. Construction plans shall be approved by the Director of Public Works and Utilities Department and be per city standards. Pump stations and force mains are considered temporary facilities and thus are not eligible for reimbursement under the Impact Fee Ordinance. Any construction will be solely at the cost of the developer without reimbursement from the City.
15. **Pump Station Design Specifications:** The developer will conform to the City design specifications for temporary pump stations and force mains as developed by the Director of the Public Works & Utilities Department. Even with the design standards, there may be additional review time required for the pump stations since they are uncommon in Lincoln. All costs for any additional review time, outside of the normal EO process, of the pump station and force main shall be paid for by the developer.
16. **Third Party Connections:** Provided there is downstream capacity, when another party other than the developer connects to the pump station that party shall reimburse the developer for their “fair share” of the cost of constructing and operating the pump station and force main (including design and soft costs.) The method and formula for contribution is to be determined.
17. **Ownership and Operation:** The developer will own the pump station, land and easements, and the City will operate the pump station and force mains once inspections have been completed and the facilities are found acceptable. Pump stations in general are costly to maintain and operate and take staff dedicated to handle some time late night calls on failures and problems. Pump stations should be avoided and the City accepts operation responsibilities only to avoid problems of

Policy on Temporary Pump Stations and Force Mains

an inexperienced or inaccessible private operator would inadequately respond to complaints or emergency situations.

18. **Operating, Repair and Maintenance Costs:** There are substantial operation, repair and maintenance costs for a pump station and force main. The City may be required to hire additional staff to operate the facility. This requires specialized training and employees with this training are difficult to find and hire. The developer will be responsible for all costs for operating and maintaining the pump station and force main during the life of the facility. The costs of operating, maintenance, upgrading, permitting, administering, all are costs of the system that must be covered by the developer. The developer will be billed for the cost, who in turn may collect from a Property or Homeowner's Association who benefit from the facilities. The City does not want the additional cost of collecting from multiple property owners.

The developer will need to provide a bond for the operating costs over the full estimated life time of the facility at time of Annexation Agreement. The preliminary estimate for the operating, repair and maintenance costs is \$25,000 per year. The bond will be estimated on a case by case basis depending upon the size and operation of the pump station and force main. The amount of the bond may be reduced each year, if the sanitary sewer trunk line progresses forward in the CIP, as long as at least two years of costs is provided.

19. **Closing of the Pump Station:** Once the station is decommissioned, the developer and any third parties will be billed all costs involved in decommissioning the station.
20. **Salvage Rights:** The developer shall fund all costs associated with properly abandoning the temporary pump station and force main, including any costs for restoring all property in or adjacent to the easements. The developer shall fund all costs associated with closing and removing the pump station. The developer shall have full salvage rights to the building, equipment and land for the pump station after it is closed. The future use of the land for the pump station shall be identified prior to approving the station.